Application No.: 10/623,607   Docket No.: 324-157

AMENDMENTS TO THE DRAWINGS:

The drawings have been amended to delete the sheet of drawing labeled "Abstract."

8

REMARKS

Claims 11-20 have been added to provide applicant with the protection to which she is deemed entitled. Independent claims 12 and 18 are similar to claim 1. However, claim 12 is an apparatus claim that is not in means plus function language, and thereby is not to be construed in accordance with 35 USC 112, paragraph 6. Claim 18 is in method format and the steps therefore are not to be construed in accordance with 35 USC 112, paragraph 6. Claims 11, 13 and 20 define the second threshold with greater specificity than claims 1, 12 and 18 upon which claims 11, 13 and 20 respectively depend. Claims 14-17 that depend on claim 12, either directly or indirectly, are similar to claims 2, 5, 8 and 9, respectively. Claim 19 is similar to claim 8. Claim 1 has been amended to assure literal infringement at the time the goods are sold, and for clarity. Claim 2 has also been amended for clarity. Claim 5 has been amended for clarity, and to indicate the updated parameter normalization is representative of a measure of spread of values of speaker verification score. Standard deviation is one type of a measure of spread of values. Variance, the square of standard deviation, is another measure of spread of values. Hence, claim 5 has been written in a manner broad enough to literally cover both of these conventional measures of spread of values.

The drawings have been amended to delete the sheet of drawing labeled "Abstract."

Applicant traverses the rejection of claims 1 and 2 as being obvious as a result of Roberts et al., U.S. Patent 6,119,084, and the Reynolds article entitled, "Speaker Identification Verification Using Gaussian Mixture Speaker Models."

The Office Action admits Roberts fails to disclose the use of an acceptance model and a rejection model, but relies on the Reynolds article to disclose both an acceptance model and a rejection model. Consequently, Roberts fails to disclose all the other features of claim 1 which depend on a speaker verification score which, itself, depends on a likelihood ratio between a voice segment to be tested and acceptance and rejection models.

9

In addition, the Roberts threshold is not a second threshold to which a normalized verification score is compared to update at least one normalization parameter as a function of a preceding value of the normalization parameter, as claim 1 requires. Roberts fails to disclose or suggest a normalization parameter of any normalized verification score.

The Office Action incorrectly alleges Roberts discloses the requirement of claim 1 for updating at least one of the normalization parameters as a function of a preceding value of said one normalization parameter and the speaker verification score on each voice segment tests only if the normalized verification score is at least equal to a second threshold that is at least equal to the first threshold. The Office Action apparently relies on column 5, line 65-column 6, line 5, of Roberts et al. for the previously mentioned "updating" feature. This portion of Roberts et al. states:

> A threshold is then determined that allows the system to separate the appropriate space into two categories: "Accept" (the new incoming example is likely to be from the speaker who created the model) or "Reject" (the new incoming example is unlikely to be from that speaker). Many variations are possible for implementing the feature extraction, feature selection and classification.

Because applicant does not understand how the foregoing feature discloses the "updating" feature of claim 1, the Examiner is requested to more specifically indicate how the foregoing language discloses the "updating" feature of claim 1.

The proposed modification of Roberts et al. as a result of the Reynolds article would not have been made by one of ordinary skill in the art. Firstly, applicant notes that the Reynolds article was cited on page 12 of the application, to disclose the prior use of generating acceptance and rejection voice models during a learning phase of generation module A3 (Fig. 3 of the application). The likelihood ratio Λ (X) given by relationship (6) at the bottom of page 95 of the Reynolds article corresponds substantially to the verification score S_v in the equation on page 13, line 21, of applicant's specification. The likelihood ratio is compared to a threshold θ so that if the likelihood ratio is greater than θ, the speaker is accepted and if the likelihood ratio is less than θ, the speaker is refused; see page 95 of the

10

Reynolds article.   Therefore, Reynolds compares the likelihood ratio to the threshold, similar to the first threshold in applicant's claim 1. However, Reynolds does not compare a normalized verification score S_N as a function of the speaker verification score S_V and does not compare two updated normalization parameters to a threshold.   Reynolds fails to disclose normalizing, by use of normalization parameters $\tilde{\mu}_\lambda$ and σ, a speaker verification score S_V that depends one the likelihood ratio between a voice segment to be tested and an acceptance model and a rejection model, to derive a normalized verification score S_N. Also, Reynolds fails to disclose comparing a normalized speaker who spoke the voice segment to be tested only if the normalized verification score is at least as high as the first threshold. Reynolds more accurately specifies the meaning of a likelihood that is to be compared to a first threshold than Roberts.   However, the combination of Roberts and Reynolds only relates to the prior art up to the first line in module V3 of applicant's Fig. 3, that corresponds to the first six lines of claim 1. In other words, the combination of Roberts and Reynolds only relates to comparing a score to a first threshold.

The foregoing indicates why one of ordinary skill in the art would not have modified the Roberts device as a result of the Reynolds disclosure, to deduce the requirements of claim 1 relating to normalizing, by use of normalization parameters, a speaker verification score, nor would one of ordinary skill in the art have combined the references to meet the requirement of claim 1 for updating at least one of the normalization parameters <u>as a function of a preceding value of the normalization parameter and the speaker verification score</u> on each segment test only if the normalized verification score is at least equal to a second threshold that is at least equal to the first threshold.

Concerning claim 2, Roberts discloses that the template of a registered user is modified by captured speech samples. However, claim 2 is concerned with an updated normalization parameter that is representative of a statistical mean value of a speaker verification score S_V.

Based on the foregoing, the rejection of claims 1 and 2 is incorrect. Since claims 3-10 depend either directly or indirectly on claim 1 or 2, these claims are allowable. Since claims 12 and 18 are substantively similar to claim 1, they are also allowable over the art of record.

11

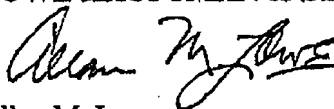Application No.: 10/623,607   Docket No.: 324-157

In view of the foregoing amendments and remarks, allowance is in order.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 07-1337 and please credit any excess fees to such deposit account.

Respectfully submitted,

LOWE HAUPTMAN & BERNER, LLP

Allan M. Lowe
Registration No. 19,641

1700 Diagonal Road, Suite 300
Alexandria, Virginia 22314
(703) 684-1111
(703) 518-5499 Facsimile
Date: June 7, 2007
AML/cjf

12